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ABSTRACT

General administrative principles and procedures applicable to any type of program sponsored by external funds, including the federal government, are examined. Contracts, grants, and cooperative agreements are the devices for authorizing sponsored programs. Since the institutions assume full legal responsibility for the programs and for fulfilling sponsor requirements, administration of these resources must be based on prudent fiscal policies, sound management practices, and effective operating procedures. Administration of sponsored programs includes proposal preparation, review, and submission; grant and contract negotiations; purchasing; development and negotiation of indirect cost rates; audit and maintenance of accounts and records; management of inventions and copyrights; property and human and animal subject controls; insuring compliance with federally mandated social programs; preparation and submission of technical and financial reports; administration of cash flow information; and compliance with other conditions of contracts, grants, and cooperative agreements. Organizational alternatives to accommodate the responsibilities or function of sponsored programs are considered, including one or more separate offices, separate corporation or foundation, and committee or board. Proposal preparation and review, negotiation, program information elements needed upon implementation, and closeouts and terminations of a sponsored project are considered. Types of contracts and grants, cost sharing arrangements, and the various conditions of performance of sponsored programs are addressed. (SW)

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Sponsored Programs

SPONSORED PROGRAMS are financed by external funds and may support the instructional, research, or public service function of an institution. Society and institutions have benefited greatly from the availability of such funds, as they advance knowledge, aid training of new scholars, and provide support for expanded facilities. External support may be significant, even critical to the achievement of a college or university's goals and objectives.

The technical and administrative responsibilities assumed by the institution in relation to sponsored programs are complex. Acceptance of funds for these programs is accompanied by a requirement for strict accountability, and involvement in sponsored programs imposes demands on facilities and staff that must be weighed carefully. Contracts, grants, cooperative agreements, memorandums of understanding, etc., entered into or accepted, state in detail their requirements of the sponsor and of the institution.

The resource implications associated with external support should be considered in policy decisions concerning the level and type of sponsored programs to be pursued. The business officer should be aware of such implications in order to adequately advise other appropriate officers when policy decisions are under consideration, or to provide leadership in their formulation and management.

Regardless of the extent to which an institution engages in sponsored programs, the effect of such funding in the context of overall institutional objectives and the administrative requirements imposed by sponsoring agencies are a matter of direct concern to the business officer. If these funds are permitted to become an integral part of the financial fabric of an institution, any significant withdrawal could create substantial academic, administrative, and fiscal problems.

This chapter presents general principles and procedures applicable to any type of sponsorship as well as to complex areas of administration made necessary by federal requirements. Contracts, grants, and cooperative agreements, the devices for authorizing sponsored programs, are awarded to institutions, not to the individuals responsible for the conduct of programs. Although these devices normally are awarded because of special competence of faculty members, the institution assumes full legal responsibility for the programs and for fulfilling sponsor requirements. Therefore, administration of these resources must be predicated on prudent fiscal policies, sound management practices, and effective operating procedures. These policies and procedures should involve the business officer and the academic community at an early stage. They should be developed with the cooperation of all sections of the institution to insure compliance with sponsor requirements as well as to maintain institutional integrity.

ADMINISTRATION

Administration of sponsored programs includes proposal preparation, review, and submission; grant and contract negotiations; purchasing; development and negotiation of indirect cost rates; audit and maintenance of accounts and records; management of inventions and copyrights; property and human and animal subject controls; insuring compliance with federally mandated social programs, such as affirmative action and those involving small disadvantaged business concerns; preparation and submission of technical and financial reports; administration of cash flow information; and compliance with other conditions of contracts, grants, and cooperative agreements.

The role of the sponsored programs administrator is to provide support services before,

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during, and following completion of the sponsored program, to create and maintain an atmosphere conducive to successful completion of the program, and to guard against any unexpected financial liability. A major task of administration is coordination of all persons involved. The academic staff is responsible for preparation and review of the technical part of proposals, performance of work, preparation of technical reports, and many other activities. The business or administrative staff should be responsible for fiscal operation of sponsored programs, including control and support.

ORGANIZATION

The coordination required for a successful system of sponsored programs should begin with the president or chief executive officer, where the various lines of responsibility and authority converge. Below this position there can be various organizational alternatives to accommodate the responsibilities or functions of sponsored programs, since there is no one best method of organization. Each institution must determine the most effective method for its own use.

Alternatives

One or More Separate Offices. Large institutions usually have at least one and sometimes more separate offices for handling the many administrative aspects of sponsored programs. In some institutions, the person responsible for the office reports to the chief business officer or to a senior academic officer. In others, he or she may be a vice president for or a director of research. In any case, it is important that there be well-defined duties, with effective internal control procedures that are known both within the institution and to all sponsors.

The internal organization of an office for sponsored programs is complicated. Broad functional responsibilities cut across projects, such as patents and copyrights, protection of human subjects, animal care, security, property management, and occupational safety and health. Individual project management responsibilities include preparation and submission of proposals, negotiation and acceptance, monitoring, and closeout.

Accounting and reporting responsibilities for sponsored programs may be assigned to an office for sponsored programs if the person in charge reports to the chief business or fiscal officer. An office for sponsored programs has important responsibilities to the institution and to the sponsoring agency. These responsibilities include assistance in obtaining prompt and accurate project cost statements for principal investigators and for the agency.

Other Means of Administration. When there is no special office for handling sponsored programs, the business office typically administers business and financial details and the academic divisions or departments are responsible for scientific and technical aspects. The institution's legal counsel may assume legal and contractual review responsibilities.

The volume of sponsored programs may be too small to justify a separate office. In certain circumstances, even when the volume is large, it may be preferable to assign various responsibilities to existing departments, divisions, and officers in order to avoid multiplying lines of responsibility. Whatever the administrative framework, it is essential that responsibility be clearly defined, and that sufficient time and personnel are provided. Business and legal problems are substantially different from those encountered in other areas of educational institution administration, and are often more complicated, particularly those concerning government agreements.

There are many situations that involve business and scientific as well as legal aspects, such as inventions and disposition of patent rights. Innovation and disclosure is a responsibility of the researcher, while procedures to facilitate disclosure rests with the sponsored programs office. Negotiation of contractual provisions for inventions and patents is a business and legal matter. Agreements regarding disposition of patent rights should be settled early during contract negotiations; however, some institutions defer patent rights until an invention is disclosed.

When various departments are involved in sponsored program administration, close liaison is necessary among business, financial, academic, and legal officers and the project leader to insure that (1) the institution undertakes only obligations it can fulfill and (2) these obligations are met.

Separate Corporation or Foundation

Some institutions have separate corporations or foundations to accept and carry out sponsored

programs. Reasons for this include limitations in charter or authorizing legislation that prevent or hamper conduct of such work, state fiscal regulations and purchasing procedures, or the desirability of having a separate corporate entity handle patents and other types of transactions in addition to sponsored programs.

The separate corporation or foundation may operate on a basis comparable to a sponsored programs office within the institution, or it may take on additional or fewer responsibilities. The legal, contractual, and operating relationships between the foundation and the institution must be established on a more formal basis than when an office within the institution has the administrative responsibility.

Committee or Board

Sometimes a committee or board is established for the general overview of sponsored programs, particularly for sponsored research. Approval by faculty members for establishment of such a committee or board can facilitate its acceptance. Both academic and business interests should be represented on the committee, but more than seven or eight members may make it unwieldy.

Major functions of this committee include periodic development and review of statements of policy or procedure covering various aspects of sponsored programs, such as criteria for acceptance, proposal procedures, security, and patent policy. The committee also may wish to review specific proposals above a certain dollar level or with unusual implications.

FROM PROPOSAL TO CLOSEOUT

Because all sponsored programs are based on agreement to perform, the process requires a formal application and acceptance procedure. This includes presentation of ideas, negotiation of terms of award, acceptance, and a structure for administering the projects. Only a properly designated officer or his or her representative should be permitted to obligate the institution or amend the terms or conditions of a contract, grant, or cooperative agreement.

Proposals

The Principal Investigator. The role of the principal investigator, who acts as director of the project, is paramount in its performance and a reasonable portion of this officer's time and effort should be devoted to the undertaking. The institution is responsible for providing an environment conducive to success of the project.

Faculty members must be free to select subject matter for project proposals, within the limits of institutional policy, and to formulate independent findings and conclusions.

Proposal Preparation. This is basically the responsibility of the principal investigator. However, depending on an institution's size, the volume of sponsored activity, and the principal investigator's commitments and expertise, support services (including typing) may be necessary for efficient production of proposals. Administrative staff familiar with budgeting and cost projections should be available to assist investigators in preparation of proposal budgets; ideally, these same persons would be responsible for administration after a grant or contract is awarded. In addition to their accounting and budgeting knowledge, administrative managers should be familiar with proposal guidelines and administrative regulations of the institution and the sponsor, and serve as points of contact with institutional officers responsible for endorsing the proposal and forwarding it to the sponsor. It is essential that administrative managers be sensitive to the concerns of faculty.

Review. Factors considered in proposal review or in negotiation of an agreement typically include:

1. Eligibility of the Investigator—Is the person initiating the proposal eligible under the rules of the institution to be a principal investigator?
2. Academic Program—Does the proposal contribute to the academic program of the institution? For example, does it provide training and support of students?
3. Completeness—Does the proposal include all information required by the sponsoring agency or follow a prescribed format?
4. Technical Reports and Supervision—Are the number, frequency, and comprehensiveness of periodic technical reports and extent of sponsor supervision satisfactory?
5. Freedom to Publish—Is the investigator free to publish or not to publish findings without restriction?

6. Percentage of Effort—Is the amount of effort committed by the investigator and others, both on and off campus, appropriate and compatible with their other duties?
7. Budgets—Is the budget sufficiently detailed? Have all direct cost items been covered in the budget, that is, salaries, fringe benefits, equipment, materials and supplies, travel, publications costs, computer services, consultants, other? Have appropriate increments for all budget categories been calculated for future years?
8. Indirect Cost Rates—Have the institution's indirect cost rates been properly applied and included in the proposed budget?
9. Human Subjects—If the proposed research involves the use of human subjects, does research protocol comply with government requirements and with assurances filed by the institution?
10. Recombinant DNA—If the proposed research involves recombinant DNA, does research protocol comply with government requirements?
11. Care of Laboratory Animals—If any live, vertebrate animals are to be used in the conduct of research, have provisions been made to insure adequate and humane care in accordance with prescribed institutional and legal standards?
12. Health Hazards—In the event that the proposed activity contemplates use of materials or devices that may pose a health hazard, such as radioactive materials or carcinogens, is there evidence of appropriate planning for safety and control and compliance with legal standards?
13. Safety and Health—Does the proposed project comply with occupational safety and health laws?
14. Security Restrictions—If there is a security restriction, does this conflict with institutional policy?
15. Insurance—Does the proposed activity pose any special property, liability, or other insurance questions?
16. Special Licenses—Have necessary special licenses been obtained?
17. Patent Agreements—Have the sponsor's patent terms been considered? Are they compatible with the institution's policy on patents? Are patent agreements on file, where required, for all persons who may be in a position to conceive, make, or first use inventions, improvements, or discoveries under the project?
18. Copyrights and Rights in Data—Have the sponsor's copyright and rights in data terms been considered? Are they acceptable?
19. New Staff—Will the proposed activity require new staff? Is such expansion consistent with the institution's plans and available funds?
20. Space and Equipment—Can the project be housed within existing space? Is it adequately equipped? If not, are requirements for additional or renovated space and equipment consistent with the institution's plans and available funds?
21. Cost Sharing—Where cost-sharing commitments are in the proposal, are they accurate, consistent with the institution's plans and budgets, and reasonable in terms of any minimum requirements that the sponsor may have?
22. Long-Term Commitments—Does the proposal commit the institution to continue the proposed activity beyond the period of sponsor funding? Beyond anticipated retirement or resignation date of principal investigator? If so, do budgeting and planning give appropriate support to all such commitments?

Final Approval and Submission. A proposal should be submitted only if the institution is prepared to undertake the work. When the same proposal is submitted to different sponsoring agencies concurrently, this procedure should be made known to each prospective sponsor. The sponsor should be notified immediately and the proposal withdrawn if, after submission, the institution finds itself unable to conduct the program under conditions originally proposed.

Proposals should be reviewed and formally approved by department heads, deans, or laboratory or institute directors. Business aspects of any proposal should be reviewed by the appropriate in-

stitutional officer or delegated representative thereof. Before submission to a prospective sponsoring agency, each proposal should have a thorough, final review, approval, and institutional endorsement. Final approval should be given by an officer who is vested with signatory authority.

Solicited Proposals. Proposals solicited by government agencies or private organizations require close scrutiny. Solicitations generally are made for very specific lines of inquiry or for an end product that does not necessarily contribute to the objectives of the institution. Because terms of solicitations often contain provisions appropriate for industry, they should be screened carefully to insure that necessary negotiations take place prior to submission and that all changes and exceptions to terms of the solicitation are documented in the submission. Acceptance of the proposal by the soliciting agency usually precludes further negotiation of terms included or incorporated in the request.

Negotiation

In the process of applying for support from external sponsors, negotiations take place at various stages to establish the scope of the activity to be pursued and terms and conditions under which work will be performed. In many cases, negotiations occur prior to formal submission of a proposal for agency support. These negotiations frequently take place between the principal investigator and an agency program officer, and generally involve matters such as scope of work or objectives of the contemplated activity.

Successful negotiation results from the joint efforts of the principal investigator and business officer or sponsored programs administrator. Such joint negotiation can avoid conflicts with institutional policy. Also, any reduction in funding should be reflected in a reduced scope of work. Concessions on agency requirements that conflict with institutional policy should be made only by the business officer or sponsored programs administrator *after consultation with the principal investigator.*

Once the proposal is submitted, terms and conditions governing work under sponsored program agreements normally are established in negotiations between the sponsoring agency and the institution. The responsible administrative officer must take the initiative in requesting the sponsor to modify provisions to accommodate policy and procedural requirements of the institution, coordinating, when appropriate, with the person responsible for conduct of the project and with other officers of the institution. Request for such modification should be agreed to by the sponsor and should then be a condition for acceptance of the award or agreement.

Since the institution is legally responsible and liable for the program, it must insist that the sponsor directly contact the appropriate institutional representative, not the project director, to negotiate terms and conditions of the agreement. Faculty members also must be informed that they cannot commit the institution. In addition, the principal investigator should be cautioned that verbal agreements with program officers of the granting agency are not satisfactory since such agreements rarely are considered valid when questioned in the eventual audit.

It is essential in arriving at equitable and satisfactory agreements that institutional officers or representatives responsible for negotiation become thoroughly familiar with the sponsoring agency's policies, regulations, and procedures. Institutional officers should maintain close liaison with institutions that participate in similar activities in order to benefit from their experience.

Acceptance

Although many grants may not require formal acceptance, internal control procedures should exist within the institution to insure that an award is properly processed and that the principal investigator and other appropriate officers are notified of the award.

Implementation

Following the award, the institution should establish a separate institutional account for the project, consistent with its chart of accounts. From the agreement a central administrative office may prepare an abstract containing the following information:

Project title
Account number
Sponsor
Sponsor's project number

Department
Principal investigator
Location
Dates
Total budget
Budget for line items such as salaries, wages, equipment, travel, etc.
Indirect cost rate
Type of agreement
Cost-sharing requirements
Prior approval requirements
Billing requirements
Reporting requirements
(a) Fiscal
(b) Scientific and technical
Patent conditions
Property provisions
Other special information

A copy of the abstract should be provided to every party having any responsibility for the project. On receipt of the abstract the accounting office or other appropriate department should have reports issued for the project.

The principal investigator and any offices concerned should be furnished a copy of the complete agreement. It is at this time that the institution informs the principal investigator of established procedures for committing funds against the project, and also authorizes expenditures.

The budget contained in the proposal normally constitutes the project's initial operating budget. An administrative officer should monitor expenditures for allowability of costs under terms of the agreement, as well as for adherence to the budget. Responsibility for compliance with terms of the agreement rests first with the principal investigator. It is important to provide written instructions, especially for a faculty member assuming responsibility as a first-time principal investigator. These instructions preferably should be part of a broader manual, defining the investigator's responsibilities, with emphasis on budget adherence and making only authorized expenditures. Procedures for requesting exceptions to budget restrictions should be established and made known.

Closeouts and Terminations

The closeout, or completion, of a sponsored project is a regular occurrence. Termination of a project by the sponsoring agency before its scheduled completion date, however, is quite different and happens much less frequently.

An institution cannot expect to be reimbursed for costs incurred (with rare exceptions) beyond the closeout or completion date of a contract, grant, or cooperative agreement, regardless of verbal promises for additional funding and time extension, or commitments made by the institution to personnel or suppliers. Close monitoring is therefore necessary as a project completion date approaches. When a renewal proposal is submitted, the renewal must be verified.

Terminations as such are different from closeouts or completions. For government grants and contracts, OMB Circular A-21, paragraph J.44, "Termination Costs Applicable to Research Agreements," outlines the costs that will be paid after the termination date. In addition, paragraph J.37, "Severance Pay," must be taken into consideration. When persons are terminated because of a sponsored project termination, institutional reimbursement for severance pay is dependent on written and reasonable personnel policy statements that are institutionwide, not merely limited to government sponsored projects.

Suspensions, sometimes known as "stop work orders," are generally included in the provisions of federal agreements. They amount to temporary termination, with obligation to resume work if suspension is lifted. Most institutions attempt to negotiate out such clauses, since persons in colleges and universities, particularly faculty and students, cannot readily be shifted back and forth among different projects or different fund sources.

TYPES OF SPONSORS

Sponsored programs are usually identified with the sponsor who makes the award rather than with the original source of funds. Thus, a local government agency may make an award to an institution with funds obtained from the federal government, with the institution considering the local government as the source of funds.

There are a great number and variety of organizations sponsoring research and other programs at colleges and universities, from large agencies to private individuals. It is convenient, however, to classify all sponsors into at least two groups: governmental and nongovernmental.

Governmental

The largest single sponsor at most institutions is the federal government, with programs supported by agencies such as the Department of Defense, Department of Education, Department of Health and Human Services, National Science Foundation, National Aeronautics and Space Administration, and the Department of Energy. Other governmental sponsors are state and local governments, which include the fifty states as well as cities, counties, townships, boroughs, and school districts. Foreign governments form still another category of sponsors. However, caution should be exercised in negotiating agreements with foreign governments because of a variety of problems that can result from these arrangements.

Nongovernmental

This group includes all other sponsors, whether profit-making or nonprofit, large or small, national or international, that are not directly or indirectly related to a government entity. Among sponsors in the nongovernmental group are corporations, foundations, voluntary agencies, and individuals.

TYPES OF INSTRUMENTS

Traditionally, two basic types of instruments—contracts and grants—were used by sponsors to fund externally sponsored programs. However, the Federal Grant and Cooperative Agreement Act of 1977 (P.L. 95-224) introduced a third type of instrument: the cooperative agreement. The act requires federal sponsors to make a distinction between procurement relationships and assistance relationships. In procurement relationships, the government awards contracts for acquisition of goods or services for the direct benefit or use of the government.

The principal purpose of assistance relationships is transfer of money, property, services, or anything of value in order to accomplish a public purpose of support or stimulation authorized by federal statutes. Within the category of "assistance," the act provides that funds shall be awarded in the form of grants or cooperative agreements, with the distinction depending on their basic purpose. Cooperative agreements are to be used when "substantial involvement" is anticipated on the part of the funding agency. The 1977 Act repealed Public Law 85-934, the Grants Act of 1958, which had authorized use of grants for most scientific research.

The new legislation evolved principally from the report of findings of the Commission on Government Procurement that in many cases, federal agencies were using contract or grant instruments interchangeably without regard to the nature of their relationships with recipients of federal funds. It was believed that this sometimes led agencies into programs and forms of support that were beyond the intended scope of the agencies' missions, and sometimes to a different level of surveillance and guidance than was proper.

Contracts

The Federal Grant and Cooperative Agreement Act of 1977 states that a contract shall be used as a legal instrument whenever its principal purpose is acquisition by purchase, lease, or barter of property or services for the direct benefit or use of the federal government.

As a procurement instrument, a contract includes many clauses based on statutory requirements or agency regulations that are not relevant to procurement of basic research. Although some clauses may be considered inapplicable, it is incumbent on the business officer or sponsored programs administrator to be aware of their content and to identify any restrictions that are unacceptable to the institution, thus requiring negotiation.

The federal government has developed several types of contracts, which range from cost reimbursement to fixed price, and regulations provide for several incentive-type contracts between these types.

A fixed-price contract for research may be appropriate in cases where level of contract effort can be identified and evidence of performance agreed on in advance. However, a cost-type contract is generally better suited for research at educational institutions.

Basic Agreement. The basic agreement contains all standard clauses applying to future contracts between the parties. Each contract or task order negotiated describes the scope of work, performance period, and any special conditions applicable to the particular project. The basic agreement is incorporated by reference. Each task order is considered a separate contract and on completion is

closed out by submission of the final technical report, invention report, and completion voucher. Audit and retention of records requirements apply to each task order and are not related to the date of the basic agreement.

Grants

The 1977 Act states that a grant agreement shall be used as the legal instrument whenever its principal purpose is the transfer of money, property, services, or anything of value to the state or local government or other recipient in order to accomplish a public purpose of support or stimulation authorized by federal statute.

Some advantages in using the grant as an instrument for supporting research or other programs are that the work description is generally written in broad, flexible terms; it is less likely to impose publication restrictions; and title to equipment purchased with grant funds usually rests with the grantee, although this may be conditional.

There are also disadvantages in using the grant for sponsored programs. The grant instrument functions as a "fixed ceiling" agreement, and since any unexpected funds usually revert to the sponsor, it is subject to downward revision only. Many grants also require cost sharing by the participating institution.

Virtually every federal agency awarding grants has a grant regulations manual or policy statement incorporated into the grant by reference, the terms and conditions of which are binding. Over the years these manuals have expanded until they now cover grantee activities in great detail. Because of this detail, many grants may be less flexible and more difficult to administer than contracts.

There is a tendency for some investigators (and on occasion the grantor) to consider the grant as a gift or contribution. However, the Comptroller General of the United States stated in his opinion B-149441, December 6, 1963, that "the acceptance of a grant creates a contract between the government and the grantee under which the moneys paid over to the grantee, while assets in the hands of the grantee, are charged with the *obligation* to be used for the purposes and subject to the conditions of the grant. Clearly, the United States has a reversionary interest in the unencumbered balances of such grants, including any funds improperly applied." (emphasis added)

Private foundations and voluntary agencies use grants almost exclusively. Many foundation grants are less restrictive than those from the federal government; however, voluntary agencies are typically somewhat more restrictive, particularly in limitation of indirect cost reimbursement and concerning title to inventions and patents.

Cooperative Agreements

The 1977 Act differentiates cooperative agreements from grants by specifying that for cooperative agreements there is to be substantial federal involvement in the assisted activity. In all other respects a cooperative agreement is a grant-type instrument. The Office of Management and Budget guidelines implementing the act confirm that OMB Circulars A-95, A-102, and A-110 apply to both grants and cooperative agreements.

COST SHARING

The rationale for cost sharing derives from the concept that *support* of research is philosophically different from *procurement* of research. In the former case, the relationship between government agencies and colleges or universities is perceived to include a mutuality of interest, which warrants a sharing of costs of such research. In the latter case, the government is guided by the principle that it is prepared to pay the full cost at fair market value of any item that it procures to fulfill its mission.

Research universities have a deliberate policy of providing part of the support for the cost of federally sponsored programs; this is known as voluntary cost sharing. However, these same institutions strongly object to *mandatory* cost sharing on every grant, as well as the stress placed on *precise* documentation on the university's contributed portions.

Statutory cost sharing is generally traced to the appropriations act for fiscal year 1958, sponsored by the Departments of Labor and of Health, Education and Welfare (now the Department of Health and Human Services), which enacted into law a previously applied policy that placed a ceiling of 15% on indirect costs. In 1966, the limitations on indirect cost reimbursement were omitted from appropriation legislation; instead, a requirement that grantees share in the costs of each project on more than a token basis was imposed on

grants for research projects. In 1970, a somewhat different statute on cost sharing was incorporated in the appropriations of the Independent Offices (which include the National Science Foundation and the National Aeronautics and Space Administration) and the Department of Housing and Urban Development, which added the requirement to certain contracts as well as to grants when there is a mutuality of interest in the relationship.

In hearings before the Senate Committee on Appropriations, concern was expressed that regulations implementing this cost-sharing provision have gone far beyond the requirements. NASA concluded in 1979 that the activities of educational institutions, under NASA contracts, grants, and cooperative agreements, do not generally produce benefits that can be measured as having significance apart from the benefit intrinsic in conducting research for NASA. As a result, NASA no longer requires cost sharing on contracts, grants, and cooperative agreements awarded to educational institutions.

The Office of Management and Budget in December 1970 issued Circular A-100, "Cost Sharing on Research Supported by Federal Agencies," which provided basic guidelines for cost sharing and specifies that cost participation by educational institutions, when required, normally should be at least 1% of the total project cost. Implementing regulations are issued by each funding agency. Cost sharing may be accomplished by making a contribution from nonfederal sources to any element of the project, direct or indirect, provided that the costs would otherwise be allowable. Cost participation may be determined for each individual project, or there may be an institutional agreement for aggregating cost sharing for all projects sponsored by a particular agency.

Private foundations and voluntary agencies generally provide full funding of direct costs but frequently impose a limitation on indirect costs, which results in cost sharing.

CONDITIONS OF PERFORMANCE

All sponsored agreements have certain conditions, some quite simple and others greatly detailed. Since these conditions are binding on the institution, all affected institutional officers and staff should be aware of them and take necessary measures to comply. Some provisions are general and apply to the entire institution; others apply only to individual projects. In the absence of such provisions, the policies of the institution must be observed.

Costs

There are both direct and indirect costs in sponsored programs. Direct costs include the salaries and wages of those working on the project, expenditures for equipment and materials, and other expenditures specifically identified with the project. Indirect costs are those that cannot be easily identified with a specific project, but which are just as real as direct costs. They include an allotted share of items such as operation and maintenance expenses, library expenses, depreciation and use allowances, student administration services, and certain other general expenses to the extent that they can be attributed to the support of sponsored programs.

Indirect costs are difficult to establish with precision. Unless institutions are reimbursed by sponsoring agencies for such costs, they must use their own resources, which diverts support from other educational objectives. Since it is not practical to determine indirect costs separately for each sponsored project, the indirect cost rate or rates is usually expressed as a percentage of modified total direct cost or of salaries and wages. These rates should be computed annually for the various sponsored programs of an institution in accordance with government regulations. The rates must be audited by and negotiated with the cognizant federal agency, appointed under the provisions of OMB Circular A-88, in order for them to be applied to federal grants and contracts. (For a detailed treatment of indirect costs, see the chapter on "Indirect Costs.")

Costs must be classified as either direct or indirect, not both. Practices vary among institutions, largely because of differences in accounting procedures and in forms of organization. OMB Circular A-21, "Cost Principles for Educational Institutions," issued by the Office of Management and Budget, contains the principles for determining costs applicable to research and development and educational services performed by colleges and universities under contracts, grants, and other agreements with the federal government.

Uniformity and Consistency

OMB Circular A-110, "Uniform Administrative Requirements, Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations," promulgates standards for obtaining consistency and uniformity among federal agencies in the administration of grants and other agreements. Uniform standards and requirements replace varying and often conflicting requirements that have been imposed by federal agencies as conditions of grants and other agreements. Exceptions may be granted when they are not prohibited under existing laws; however, in the interest of maximum uniformity, such requests are granted only in unusual cases. OMB Circular A-110 does not apply to contracts.

OMB Circular A-101, "Administration of Grants, Contracts, or Other Agreements with Educational Institutions," provides for standard policies and procedures for all federal agency awards made after March 31, 1971. OMB Circular A-110 rescinds parts III and IV of Circular A-101 as it relates to *grants* and establishes its own criteria for grant management. However, all four sections of A-101 remain applicable to *contracts.*

Purchasing and Subcontracting

Government contracts, grants, and cooperative agreements are subject to requirements pertaining to purchasing and subcontracting. In addition to prior approval requirements (described in the section "Prior Approvals"), the institution must establish procedures for the procurement of goods and services. For grants, these requirements are found in attachment O of OMB Circular A-110, the grant document and grant manual. Contracts contain additional requirements pertaining to use of labor surplus area enterprises and small disadvantaged business concerns, among others. Purchasing for sponsored programs normally takes place through the regular purchasing office of the institution; in such cases, the staff of the purchasing office may require instruction in government procurement requirements.

In addition to the above, purchase orders under government contracts require a number of special terms and conditions. These are best handled by attachments to purchase orders, which could include clauses concerning the following:

Examination of records
Renegotiation
Federal, state, and local taxes
Equal opportunity
Compliance with laws and regulations (which should be named, such as the Buy American Act)
Contract Work Hours Standards Act
List of employment openings

It is desirable that a person with expertise in the field, such as a contracting officer or an attorney familiar with government contracts, prepare forms recommended for purchase order attachments.

Government contracts define subcontracts to include purchase orders, but for the purpose of this discussion subcontracts are defined as those procurement instruments that are not on a fixed-price basis or that are for research or development, or both. Virtually all these require sponsor approval and inclusion of many of the same terms and conditions as in the prime contract. Subcontracts under grants also should include applicable requirements from the grant document or applicable grant manual.

Subcontracts as defined here require substantially more negotiation than fixed-price purchase orders. Each subcontract must be separately tailored, and most require careful administration during the period of performance. For these reasons it is often more practical for the sponsored programs officer, rather than the purchasing office, to handle negotiation, preparation, and administration of subcontracts.

Statement of Work

The document for each contract, grant, or cooperative agreement sets forth what is to be performed as a condition of the award. In contracts, this provision is typically called "Statement of Work" and contains:

1. A detailed statement of all elements of the work to be performed which may be prefaced by a general statement of project objectives.
2. A schedule setting forth reports, technical data, and all other deliverable end items required under the contract.
3. Generally, a level-of-effort or a best-efforts commitment when work is to be performed on other than a completion basis.

Changes in the scope of work rarely can be made without prior approval by the sponsor. On occasion a contract will contain a "changes" clause giving the sponsor the right to change unilaterally (1) drawings, design, or specifications, (2) method of shipping or packing, and (3) place of inspection, delivery, or acceptance. This gives the sponsor a degree of technical direction of the work that many institutions consider unacceptable. Such institutions may insist on the right to terminate the project if the change is not acceptable. However, termination can create problems for graduate students working on the project and conducting thesis research.

Prior Approvals

Many sponsored agreements contain requirements for agency or institutionally based prior approvals in a variety of transactions. Some of the most important of these relate to:

Change in approved scope of work
Change in principal investigator
Changes in budget
Purchases above a specified amount
Purchase of equipment
Building construction or alteration
Subcontracts for research and development
Travel
Consultant agreements

Institutional procedures applying to these matters should be developed with care, especially the degree of centralization or decentralization of responsibility for compliance with and maintenance of records relating to these requirements. Records of approvals granted should be available for audit.

Accounting

Generally accepted accounting and reporting procedures for colleges and universities should be followed in the management and administration of sponsored programs. In addition, the accounting system should provide for application of cost principles and standards on a consistent basis as prescribed in OMB Circular A-21. Familiarity with the provisions of Circular A-21 and policies and regulations of sponsoring agencies on allowability of costs is essential. The system should be responsive to billing and reporting requirements, which vary among agencies.

Adjustments among budget categories should be controlled when agencies place restrictions on budget changes. Budget control is also important to avoid overruns, which may affect institutional resources, or underruns, which may indicate performance levels below commitments to agencies or the use of institutional resources beyond cost-sharing requirements.

Separate accounts for each project should be established, with monthly expenditure statements provided on a timely basis to aid the principal investigator and the sponsored programs administrator in effective management of resources and in timely preparation of reports. These records should be retained as required and made available for government or other special audits. It should be noted that the fiscal period for contracts and grants is not necessarily related to the fiscal year of the institution.

Audits

The institution is subject to several types of audits. Expenditures incurred under grants and contracts as well as the management systems employed to administer the institution are subject to audit by the cognizant agency. For contracts, audit reviews are required prior to negotiation or modification resulting from proposals in excess of $250,000 when the price is based on cost or pricing data submitted by the proposing contractor. In addition, the proposal for indirect cost rates to be applied to federally sponsored programs is subject to audit and negotiation prior to acceptance of indirect cost rates.

The cognizant federal agency appointed under the provisions of OMB Circular A-88 is assigned to each institution to represent all federal agencies in the performance of and resolution of audits. An institutional representative should be designated to provide liaison with the auditors, establish a working relationship with them, and be notified of their activities at the institution. This liaison officer should arrange necessary meetings between auditors and institutional faculty and employees. Arrangements also should be made for exit interviews on completion of audits for advice on findings. Some major agencies, such as the Department of Defense, Department of Health and Human Services, and the Department of Energy, include appeals procedures in their regulations to

accommodate situations in which audit findings cannot be readily resolved.

An audit by the cognizant federal agency does not necessarily constitute a final audit of the records. The U.S. General Accounting Office reserves the right to audit, within the legal record retention period, any records pertaining to disbursement by any federal agency.

Payments

Several methods are employed by federal agencies to pay educational institutions that have sponsored programs. Depending on practices of the individual agency and dollar volume of programs, payments may be made in advance, in installments, or on submission of invoices after costs have been paid. OMB Circular A-110 encourages federal agencies to make advance payments in reasonable amounts to educational institutions whenever practical in all cases where the agency is authorized by law to do so.

The Treasury Department's letter-of-credit procedure is an advance payment method commonly used. Treasury Circular 1075 establishes the policy regarding advance financing of federal programs. The procedures are detailed in Treasury Fiscal Requirement Manual, Part VI, section 1020, under which payment is made to the institution, with respect to allowable costs. Form TUS 5401 may be submitted for deposit of funds to the institution's commercial bank account to meet actual cash requirements.

Treasury Form 183 is used for the regional disbursing office (RDO) letter-of-credit arrangement. Payment under the RDO system is by Treasury check sent to the recipient; however, the recipient may make arrangements to have the check sent directly to its bank and deposited to its account. (The RDO system is used by the National Science Foundation.)

Arrangements for advance payments occasionally can be made directly with a sponsor, outside the Treasury Department's letter-of-credit system. Payments may also be requested on the basis of anticipated needs for a prescribed advance period. Or the sponsor may elect to make installment payments. Such payments are to be negotiated in advance with the agency at the time the agreement is awarded, and may provide payment on an advance basis. These arrangements involve only the institution and the sponsor; a commercial bank is not included.

Records

Government sponsoring agencies generally require the maintenance of intact and accessible records relating to receipt and expenditure of funds accepted by institutions. Other records, such as those relating to equipment acquisitions and maintenance of equipment, are also frequently required. These records and any other pertinent books, documents, or papers are usually subject to audit by sponsoring agencies or their authorized representatives and, in the case of federal funds, by the U.S. General Accounting Office. Retention periods for these records generally can be found in applicable statutes, regulations, or terms and conditions or agreements.

Equipment

When acquiring equipment financed from contract or grant funds, careful attention should be given to the terms and conditions of the agreement, appropriate regulations, and agency policy, since prior approval almost invariably is required for acquisitions exceeding a specified dollar value. A further condition of acquisition may be a requirement to screen available research equipment to insure that no existing government or institutional property is available to fill the particular need.

Vesting of title to equipment in the institution, accountability for equipment, and its use and disposition are covered in attachment N of OMB Circular A-110 for grants and cooperative agreements and in general provisions for contracts. These should be reviewed for constraints on use of equipment as well as maintenance, reporting, identification marking, and disposition requirements.

Personnel

It is generally a result of accepting federal funds, mainly through awards of contracts, grants, and cooperative agreements, that requirements relating to personnel (both employees and students) are imposed on the institution. These requirements are defined in the specific terms and conditions of a contract, grant, or cooperative agreement, in federal legislation and

regulations, and in executive orders. Some requirements apply regardless of size of institution and scope of federal funding; others have applicability according to size and scope. Many requirements also may extend to private companies engaged in campus construction, to those providing major campus services, or to those selling supplies to the institution. Failure to comply with requirements may result in cancellation of contracts, grants, or cooperative agreements, disqualification for future awards, financial penalties, or other sanctions.

To be considered are equal employment opportunity; equal pay for equal work; wages, hours, and working conditions; job listings; and nondiscrimination in student admissions and financial aid. State laws governing educational institutions, especially those that are state-supported, also must be observed; they sometimes differ from federal laws. Therefore, careful and continued examination of legislative action is essential.

Human Subjects

The Department of Health and Human Services has established a set of requirements affecting any activity funded by that department and involving human subjects; institutions must abide by certain protective rules. Many universities accepting federal funds for research extend these rules to guide all research projects involving human subjects, regardless of source of funding.

An institutional review board must be established to review activities involving human subjects. Generally this board evaluates proposed research projects to insure that methods and techniques used are adequate to protect the rights of subjects, that the risks to subjects are outweighed by potential benefits, and that legally effective, informed consent of subjects is obtained when necessary. Since legal and ethical liabilities involved are substantial, the review board must be well organized with clear lines of responsibility and authority.

Animal Care

Educational institutions have a legal responsibility under Public Law 91-579 to provide adequate care and humane treatment for warm-blooded animals used in experimental research.[1] The NIH *Guide for Grants and Contracts* of November 10, 1978, extends the definition of animal to include any live vertebrate animal used or intended for use in research, testing, training, or related purposes. For an educational institution to meet its minimal legal and ethical obligations, it should have a committee for laboratory animal care to review animal care procedures and to insure compliance with proper standards.

DNA Recombinant Research

In June 1976, the National Institutes of Health issued guidelines for research involving recombinant DNA molecules. The guidelines govern conduct of NIH-supported research on recombinant DNA molecules and they establish carefully controlled conditions for the conduct of experiments involving the production of these molecules and their insertion into organisms such as bacteria.[2] Regulations require that institutions establish a standing biohazards committee if research involving recombinant DNA technology supported by NIH is conducted. All new, continuation, and competing renewal applications received after December 1, 1976, involving DNA recombinant research must be in compliance with requirements and be accompanied by a Memorandum of Understanding and Agreement. Since 1976, the guidelines and regulations concerning the use of recombinant DNA have been subject to various changes; thus, institutions are urged to secure up-to-date regulations prior to embarking on recombinant DNA research activities.

Inventions and Patents

Most contracts and grants for sponsored research contain provisions governing reporting and disposition of inventions and patents. Such provisions are used less frequently in nonresearch projects. Government agencies typically have firm policies concerning inventions and patents, leaving little opportunity for negotiation.

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[1] *Guide for the Care and Use of Laboratory Animals,* published by the Department of Health and Human Services, defines humane care in professional terms and describes facilities that provide such care. The recommendations in the guide are used by the American Association for Accreditation of Laboratory Animal Care in its accreditation program.

[2] The guidelines were published in the *Federal Register* in 1976 and detailed procedures for the submission, review, and monitoring of projects were published in the NIH *Guide for Grants and Contracts.*

Usually the government will assert its right to title, but in some instances the agency may be persuaded to waive title. (The National Aeronautics and Space Administration and the Department of Defense are examples.) Voluntary agencies also have fixed policies regarding disposition of inventions and patents, but most private, nonprofit organizations, such as private foundations, have no restrictions. There is usually latitude for negotiation in contracts and grants from industrial organizations.

An established institutional policy for administration of inventions and patents affects the extent to which patent conditions of contracts and grants are acceptable to or negotiable by academic institutions.

All professional persons participating in a sponsored program should sign an agreement to comply with contract or grant (or grant manual) provisions specifying sponsor acquisition rights to inventions and patents. It is the participation that matters, not the source of the faculty member's salary or the graduate student's stipend. The legal consideration cited in the agreement thus should not be salary or stipend but the furnishing of funds, facilities, and services. A standard agreement covering all types of contract and grant conditions is simpler to administer than separately tailored agreements.

Periodic review of all grants and contracts containing invention disclosure requirements is desirable and often required. A summary invention statement may be sent to every principal investigator on the anniversary date of the relevant grant or contract, or all summary invention statements may be sent out at the same time. (The latter is simpler to administer.)

Some institutions, particularly those with a substantial volume of research, employ patent counsel or a patent agent to review reports and sometime even notebooks in order to keep current with inventions made and to handle patent applications promptly. Whether or not there is patent counsel, individual invention disclosures must be made promptly at the end of a specified term or closeout period. Principal investigators frequently need to be reminded of this.

If the institution does not employ a patent counsel, an individual on the staff should be sufficiently knowledgeable in the patent field to advise research staff members. Agreements with management firms can be helpful in evaluation of inventions and, if patentable, in their management.

Any subcontract or consultant agreement involving research or development activity must contain a clause covering inventions and patents similar to that in the prime contract, grant, or grant manual unless the sponsor approves a different arrangement. However, it is generally possible and most desirable in government grants and contracts to pass the enforcement task to the government.

Publication, Copyrights, and Data

Publication of results of sponsored programs is almost always more important to colleges and universities than are inventions and patents. Most institutions refuse to accept contract or grant terms giving a sponsor the right to veto or censor publication, although a delay may be acceptable if a patent application is in process. Some institutions accept classified contracts for reasons of national security and in the interests of faculty members whose scientific specialties are in classified areas. Special contract clauses are available that recognize the difference between academic institutions and industrial concerns in security matters. In nonclassified areas, it is considered contrary to the Freedom of Information Act for federal agencies to prevent publication.[1]

Problems with restriction on publication seldom arise with private, nonprofit agencies and foundations. Industrial sponsors are another matter. Institutions rarely give industrial sponsors the right to veto publication because of faculty and graduate student interest in and dependence on publication and because of the basic educational obligation to disseminate knowledge. However, it can be in the interests of both parties to agree to make no reference to the other in any publication, publicity, or advertising without prior approval.

"Data," as considered in this section, usually refers to recorded information, regardless of form or characteristics and typically is subject to

[1] House Committee Report "U.S. Government Information Policies and Practices—Administration and Operation of the Freedom of Information Act" (Part 5), Hearings Before a Subcommittee of the Committee on Government Operations, House of Representatives, 92nd Congress, 2nd Session, March 20, 23, 24, 27, and 28, 1972.

copyright. "The following types of material may be subject to copyright:

1. Any written works, including books, journal articles, texts, glossaries, bibliographies, study guides, laboratory manuals, syllabi, tests, and proposals.
2. Lectures, musical or dramatic compositions, and unpublished scripts.
3. Films, filmstrips, charts, transparencies, and other visual aids.
4. Video and audio tapes and cassettes.
5. Live video or audio broadcasts.
6. Programmed instruction materials.
7. Computer programs.
8. Pantomimes and choreographic works.
9. Pictorial, graphic, and sculptural works.
10. Sound recordings.
11. Other materials.

Although copyright law does not specifically mention computer programs, the U.S. Copyright Office has recognized since 1964 that computer programs are copyrightable, and numerous programs have been copyrighted. The National Commission on New Technological Use of Copyrighted Works recommended in 1978 that such recognition be continued."[4]

Most federal agencies require a royalty-free, nonexclusive license for reproduction and use of copyrightable material. Additional controls may be sought when the specific object of a contract or grant is the production of copyrightable material. As with inventions and patents, an agreement pertaining to copyrightable material should be obtained from all professional personnel participating in sponsored programs that have requirements for disposition and licensing. Again, the legal consideration should be provision of funds, facilities, and services. Having a single agreement covering both inventions and copyrightable material may be an administrative advantage. There should be a footnote for any copyrighted work (such as a technical journal or book), giving the sponsor the requiring license for reproduction and use.

Security

If compliance with government security regulations is a requirement of a sponsored program, an administrative officer or responsible staff member should be designated as security officer to supervise compliance. This person should be responsible for keeping the institution informed of all security regulations of sponsoring agencies. He or she should arrange for internal security procedures and insure that safeguards are available for mail and storage facilities. The security officer's duties also include (1) helping to acquire facility clearance so that classified information may be obtained from the federal government by faculty members who have a need to know, (2) arranging the necessary visit clearances for staff members attending meetings, and (3) performing all other duties necessary to insure the institution's compliance with security regulations.

Reporting Requirements

On completion of a sponsored project, reporting requirements must be satisfied. These vary among sponsoring agencies, but most government projects require the following:

1. A Final Technical Report on the work that is accomplished during the period of performance.
2. A Final Report of Inventions disclosing inventions made under the project, since in many cases determination of patent rights may rest with the sponsor and it is often necessary to certify whether or not an invention has been made during the course of a project.
3. A Final Equipment Report of equipment purchased, fabricated, or furnished by the sponsor during the project.
4. A Final Financial Report that sets forth all expenditures and other financial data (such as cost-sharing contributions) for the project.

While these reports are submitted at the end of a project, some reports are also submitted on a periodic basis, such as those of inventions, equipment acquisitions, project progress, and expenditures. Terms and conditions of contracts, grants, and cooperative agreements, as well as agency policy, should be reviewed for such requirements. In most cases, continued funding of projects depends on timely submission of required reports.

[4] *Copyrights at Colleges and Universities, Washington, D.C.*, NACUBO, 1980, pp. 3-4.

Miscellaneous Requirements

In addition to the specific requirements identified above, there are other administrative requirements frequently imposed as conditions of acceptance and use of funds. The business officer or sponsored programs administrator should be aware of these and insure that adequate policies and procedures exist within the institution to satisfy them.

NEW DIMENSIONS

Future relations between the federal government and research institutions cannot be predicted, but certain issues, such as calculation of the indirect cost rate, have been and will continue to be problems. Other issues are exemplified by the National Commission on Research, which is investigating (1) accountability, (2) peer review and other selection processes, (3) alternative funding mechanisms, (4) industry-university-government relationships, and (5) development of research personnel. The Commission was founded in 1978 to analyze and make recommendations for the improvement of the process of government funding and university involvement in research. Regardless of the outcome of this investigation and regardless of any future government-institution problems, the dependence of the two parties on each other will remain essentially unchanged, as both are necessary to each other's welfare and to the welfare of the country.